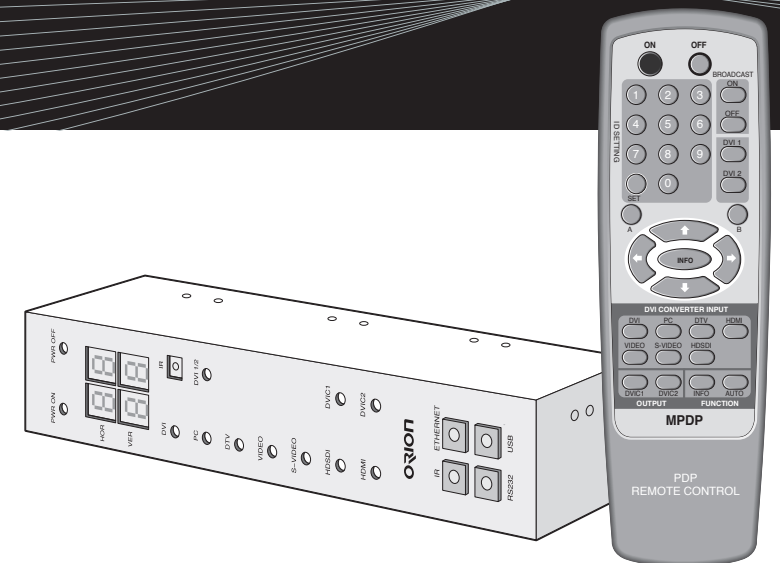


New Multi Function Controller

ORION CO., LTD.
www.oriondisplay.net

Address: 257-6, Gongdan-dong, Gumi-si, Gyeongsangbuk-do, Korea
Tel : +82-2-6678-8533, Fax: +82-2-6678-8599



User's Manual

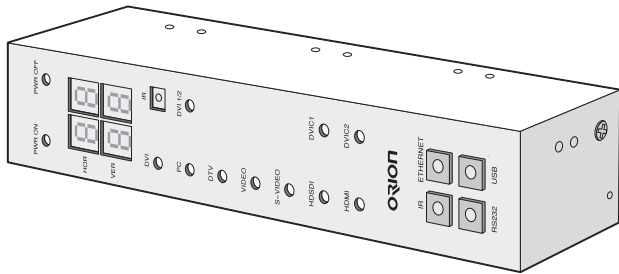
Thank you for purchasing our New Multi Function Controller.
Please read through this user's manual for safety before installing this product.
This product is manufactured for Multi Plasma display model only.

Product & Accessary

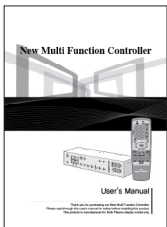
Please check remote controller and all the accessories are included in the box



Remote Controller : 1EA



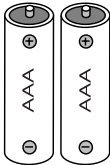
Multi Function Controller : 1EA



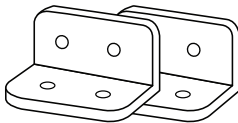
Manual : 1EA



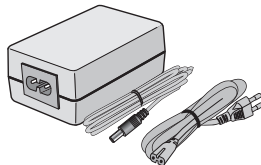
RS-232C Cable : 1EA



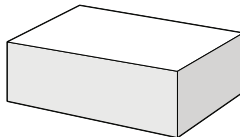
Battery (AAA) : 2EA



L-Bracket : 2EA



Adapter 1EA



box 1EA

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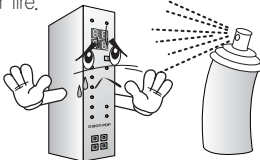
01. Safety Precautions

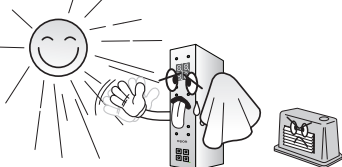
■ Cautions for New MFC

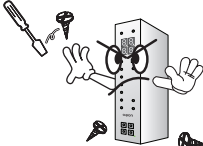
- Please do not use at the places of hot and humid environment.
– It may damage the product.

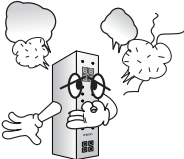

- Do not touch the power cable with wet hands.
– It may cause an electric shock.

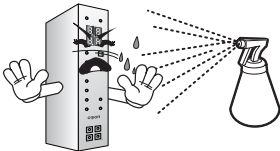

- Do not store or use flammables like a combustible spray around the product.
– It has a possible danger of explosion or fire.

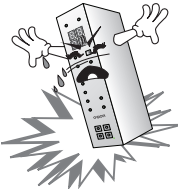

- Do not put the product under the direct sunlight or near to hot places.
– It may cause fire.

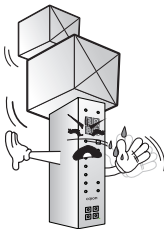

- Do not disassemble, repair or alter the product with users' own intention.
– It may cause an electric shock or fire. If you need to test, adjust or repair the product, contact with an authorized service center.


- If you detect smoke, smell or strange sound from the product, stop using the product immediately, disconnect the power cable and contact with an authorized service center.
– It may cause an electric shock or fire.


- Do not spray water directly on the product.
– It may cause an electric shock or fire.


- Carefully move the product not to give any shock.
– It may cause product malfunction.


- Please do not stack heavy objects on top of the product.
– It may damage the product.

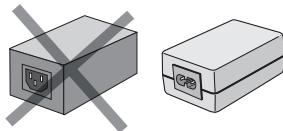

- Please be careful not to soak unknown material or liquid into the product.
– It may damage the product.

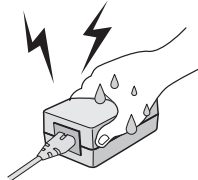

- Please keep away from children's reach.
– If they drop Remote Controller, it may hurt the children or cause product malfunction.

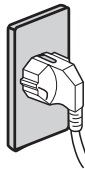


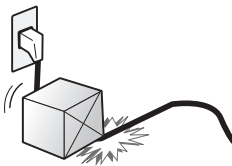
■ Cautions for Adapter

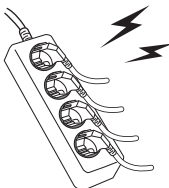
- Use the provided adapter
– Improper adapters may damage the product. If you cannot use the provided adapter, use the adapter of proper specification.

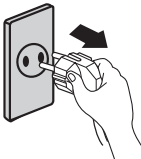

- Do not touch the adapter with wet hands.
– It may cause an electric shock.


- Make sure the power plug is properly connected.
– Loose connection may cause an electric shock.


- Do not put a heavy object on the cable or fold the cable.
– It may cause an electric shock or fire.


- Do not connect to a multi-power-socket together with many other electric products.
– It may cause an electric shock or fire.


- Disconnect the power plug on the occasion of lightning.
– It may damage the product.



Notice to users



Class A digital device
It is a device designed for business purpose with a safety certificate for electromagnetic interference, which user should be mindful of.

02. Product Introduction

■ Introduction

New MFC (Multi Function Controller) is designed for functional expansion and compensation in communication and users’ convenience. It provides various communicational interfaces of Serial, USB and Ethernet and also provides 4-channel daisy chain port to solve the most critical problem of serial communication. Users can find out the status of the product with the LED indicators. It is also functioning as a BIC controller and a receiver for Remote-controller.

■ Features

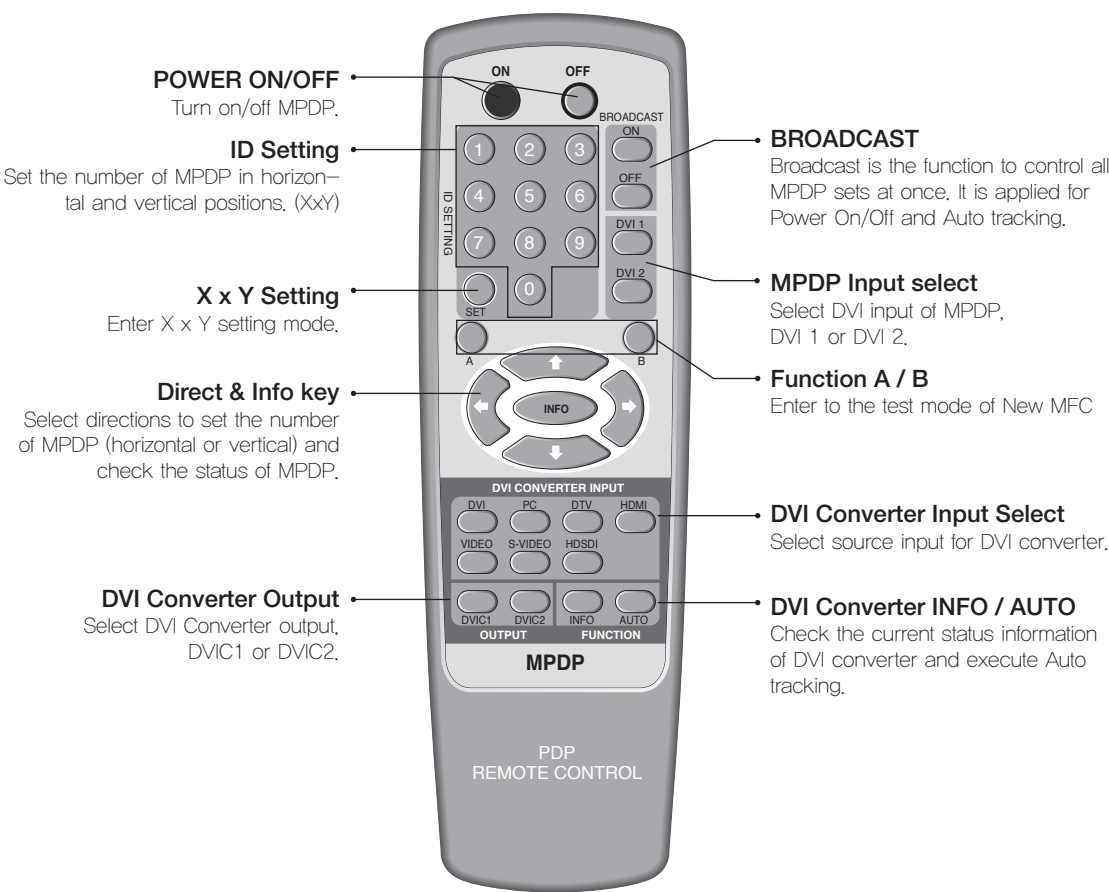
MPDP is mainly controlled through the Serial communication (RS-232C). However, gradually, USB and Ethernet port are replacing Serial port in control devices such as computers. New MFC can support either case. Based on installation circumstance or Users’ preference, Serial (RS-232), USB or Ethernet can be selected. Especially, Ethernet allows controlling MPDP through LAN network or even with Internet. Users can have better communication quality with 4-channel serial port equipped in a New MFC. It helps avoiding possible undesirable communicational distortion from multiple daisy-chains.

■ Advantages

- 1. Expand the communicational functions of MPDP. (Serial / USB / Ethernet / IR)
- 2. Prevent possible communicational distortion from using Serial port by 4-channel serial port.
- 3. It transmits the information for BIC by communicating with MPDP without additional applications. (Only applicable to OPM-4250, OPM-4250R)
- 4. Control the main functions of MPDP and DVI converter by a remote controller without additional applications.

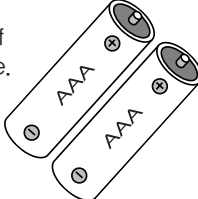
03. User Guide Information

■ Remote Controller



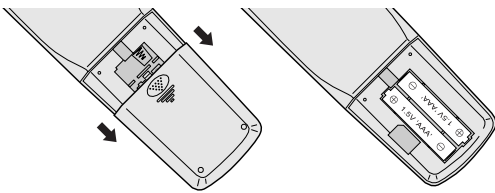
1. Note :

- Use two 1.5V AAA-type batteries.
- Do not mix old and new batteries.
- Do not mix different types or makes of batteries. Mixed use of Alkaline, Manganese or Re-chargeable batteries are NOT recommended.
- Only use two batteries of the same type and make.



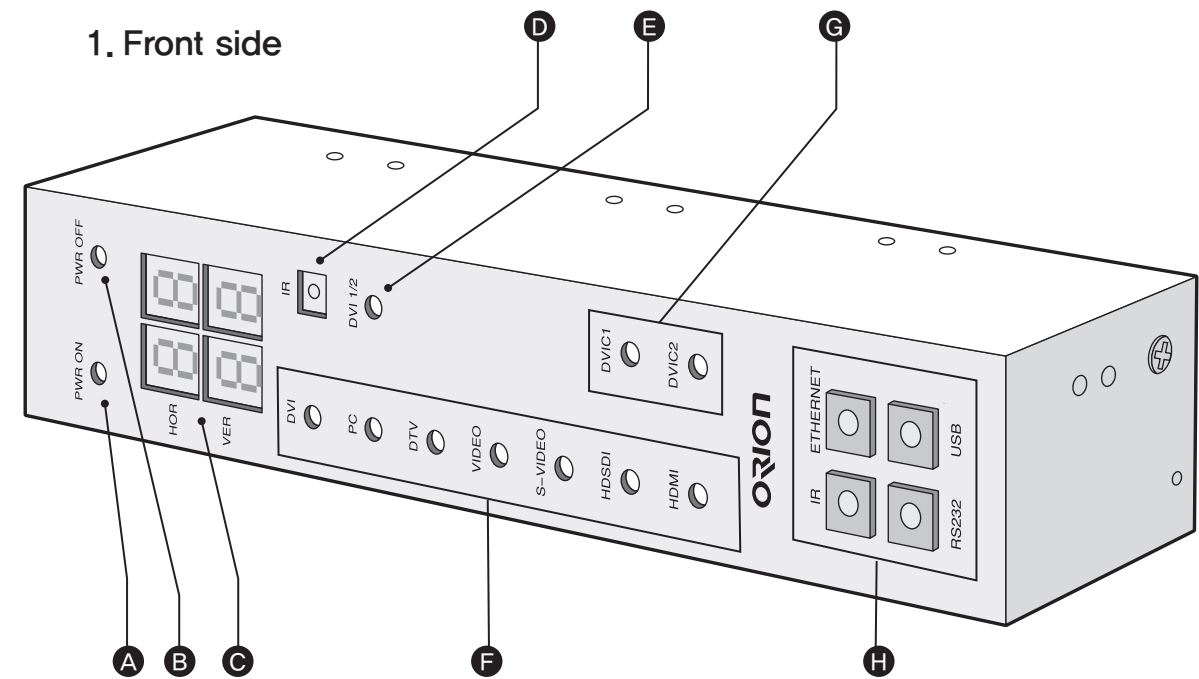
2. How to mount batteries

- Slide the cap at the rear side of the remote controller to open.
- Insert batteries with the correct polarity and close the cap.



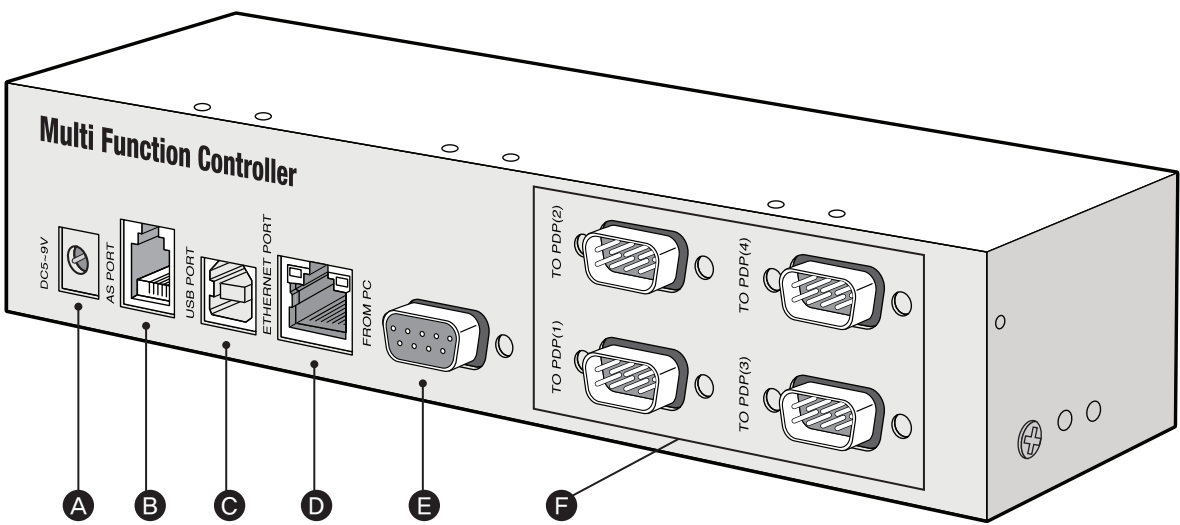
■ New MFC

1. Front side



- A. Power On Indicator**
It is turned on when "Power-On" command is received from the remote-controller.
- B. Power Off Indicator**
It is turned on when "Power-Off" command is received from the remote-controller.
- C. MPDP configuration Indicator**
It indicates the configuration of "X x Y" in the 7-segments.
- D. IrDA Receiver**
It is the reception position for the IR signal from the remote-Controller.
- E. Indicator for DVI Input selection of MPDP**
It is turned on for "DVI1 channel" and turned off for "DVI2 channel".
- F. Input Mode Indicator**
It indicates the current input source.
- G. DVI Converter DVI Output Indicator**
It indicates the current DVI output.
- H. Converting switch and indicator for communication Interface**
They are push button switches and indicators for communication interface (Serial/IR/USB/Ethernet).

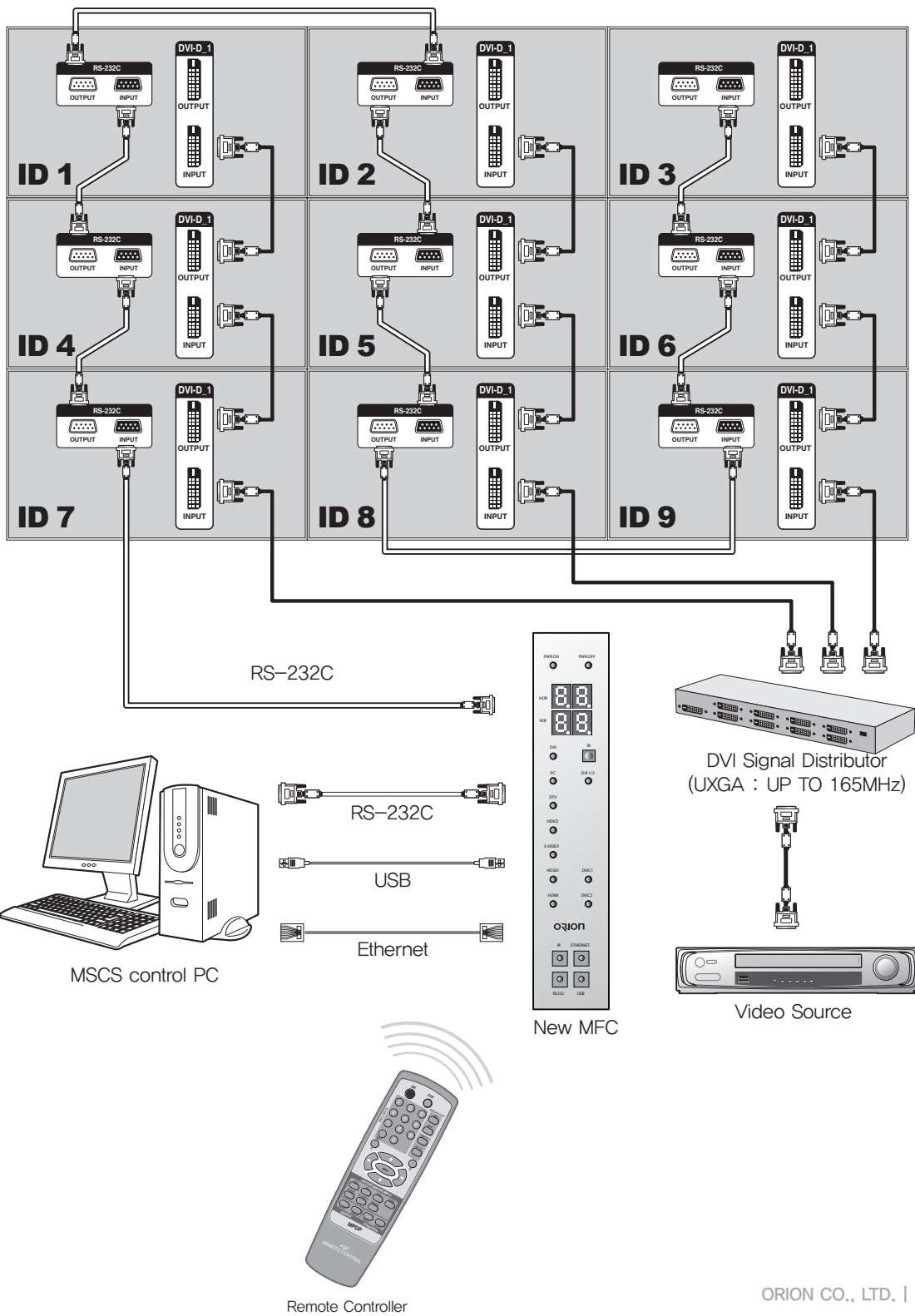
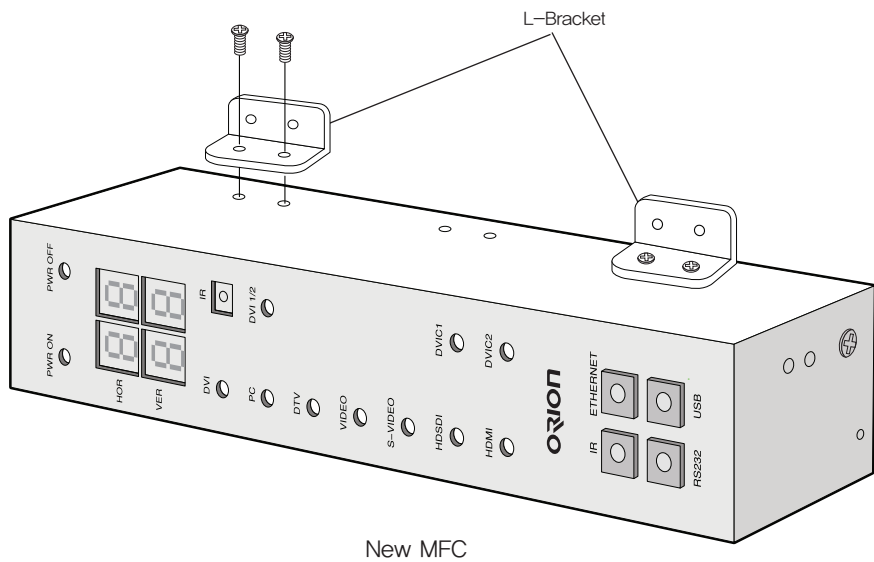
2. Rear side



- A. Power connector**
Power connection for 5~9V
- B. Service Port**
It is a port for program download and debugging.
- C. USB Port (Type B)**
It is used for communication when the interface is changed to USB mode.
- D. Ethernet Port**
If it is directly connected to an external control device, "Crossover Network Cable" must be used.
If it is connected to a hub, "Straight-Through Network Cable" must be used.
- E. 1 Channel Serial Port (R/A 9pin DSUB-female)**
It is a connection port between Main board and sub board.
- F. 4-Channel daisy-chain Serial Port (R/A 9pin DSUB-male)**
It is used to connect with MPDP. Each channel can be used to connect 25 MPDP daisy-chain.

04. New MFC Installation

- 1. Connect RS-232C cable and a power adapter and install at the location of good remote control reception. Use L-brackets to install at the side of the set.
 - 2. Connect a computer and the New MFC with at least one of Ethernet, RS-232C, and USB port and connect the MPDP to the RS-232C output in the New MFC. Users can control MPDP with one of Ethernet, RS-232C, USB, and IR remote controller.
 - 3. Set the number of MPDP units as instructed in <Configuration Mode> in the manual. (Initial setting is 3X3)
 - 4. The LED lamps in the New MFC indicate the previous or initial input source at first, please select input source once again after power supply. (Default; previous input source).
- ※ Caution : Please do not directly expose the IrDA Receiver to fluorescent lamps. It may cause malfunction.



05. How to use Remote Controller

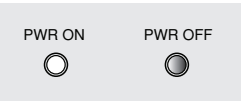
05-1. Power ON/OFF

Every command is executed on all MPDP sets.

1. POWER ON



1) Press POWER ON button.

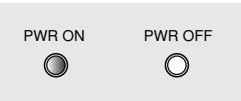


2) MPDP is turned on as the PWR LED of the New MFC is turned on.

2. POWER OFF



1) Press POWER OFF button.



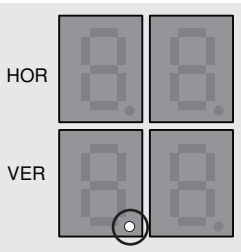
2) MPDP is turned off as the PWR LED of the New MFC is turned off.

05-2. BROADCAST

BROADCAST is a command to make all MPDP perform Power On, Off or Auto Tracking simultaneously.



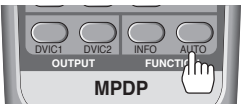
1) Press BROADCAST button.



2) When the LED dot in the 7-segment at the lower left side unit is turned on, Broadcast command is executed.

05-3. AUTO Tracking (PC Mode Only)

It is available only with PC mode. When it is connected with DVI converter, Auto Tracking is used to correct the distorted screen alignment.

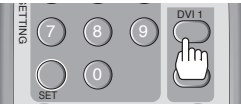


1) Press AUTO button.

2) Auto Tracking is performed.

05-4. DVI Selector

It is used to select DVI 1 input or DVI 2 input.



1) Press DVI 1 or DVI 2 buttons in the Remote controller.

2) When the LED is turned on, MPDP output is DVI 1 and when it is turned off MPDP output is DVI 2.

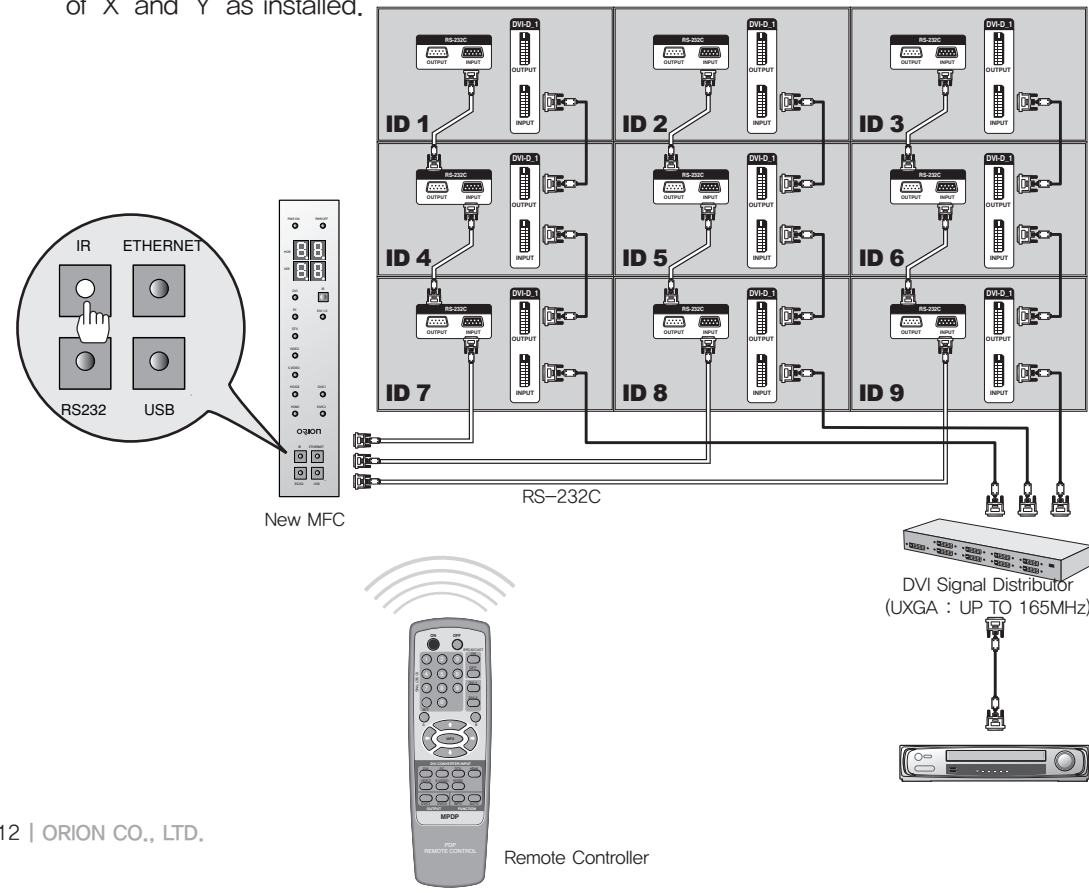
05-5. Mode change

There are four interface, Ethernet, USB, RS-232C, and IR (Remote control). Users can select the mode
Press one of the four LED switches to select a mode you want.

1. IR mode

IR interface is designed to execute some MPDP commands through the wireless infrared communication. It includes some tests and functions to configure Ethernet settings. The signal from the remote controller is converted to RS-232C signal as defined in the protocol and send to MPDP.

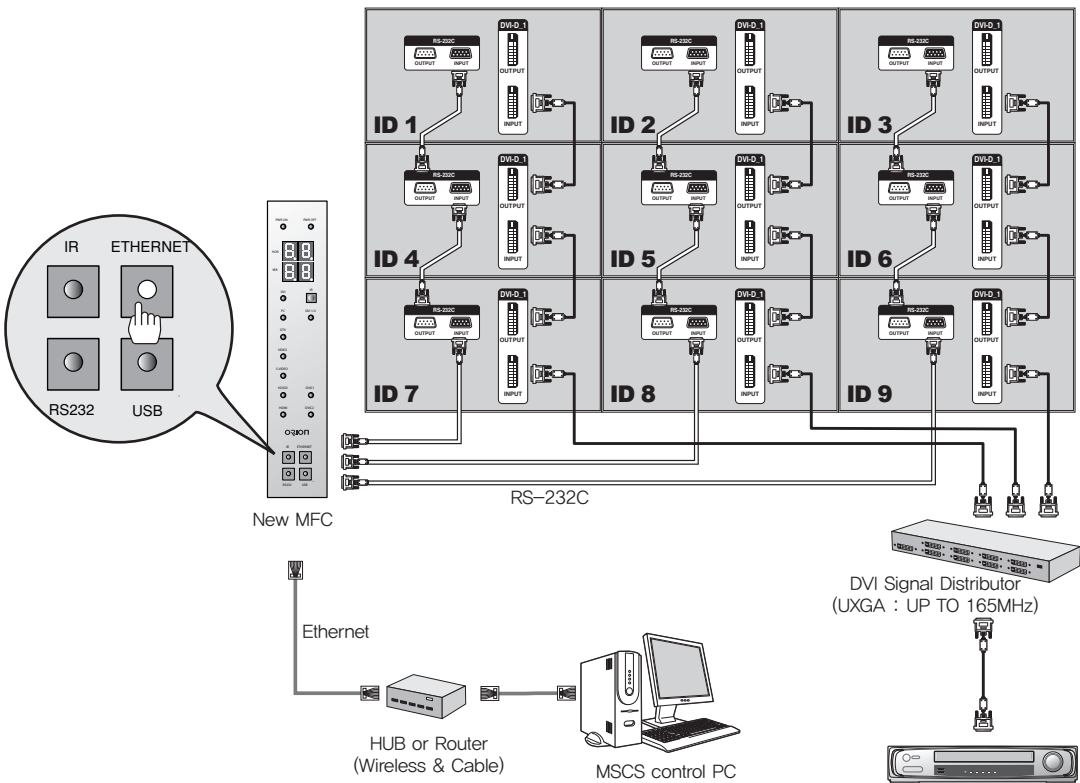
- 1) To execute IR mode, press IR LED switch on the front side of New MFC.
- 2) When you press, IR LED switch, the other communication modes are not working.
- 3) For better IR performance, MPDP set configuration is necessary. Configure the number of "X" and "Y" as installed.



2. Ethernet mode

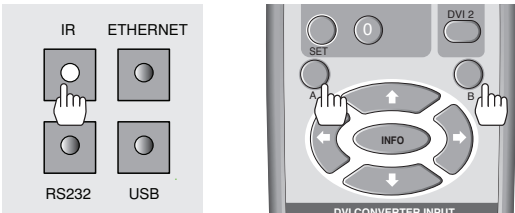
Ethernet interface is based on TCP/IP Protocol. According to DHCP setting, it can be used as dynamic IP or static IP. Long distance control with World Wide Web and internet communication through HUB or Switch are available.

- 1) To execute Ethernet mode, press Ethernet LED switch on the front side of New MFC
- 2) To control MPDP, connect to a computer and use MSCS program.
(Corresponding port should be selected)

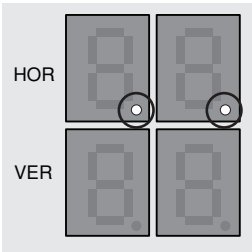


■ IP address

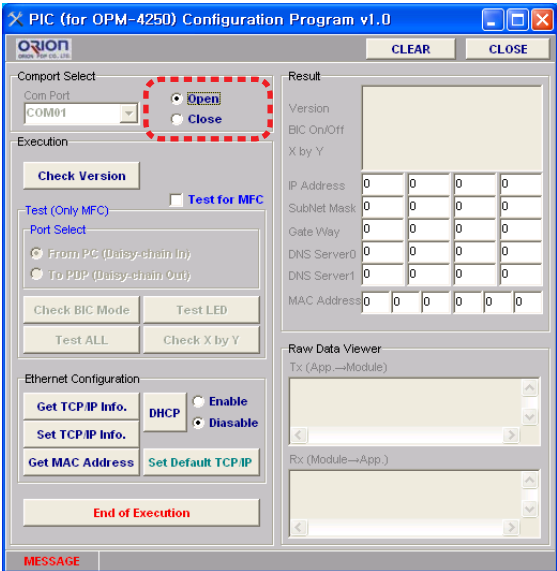
1) Change to IR mode and press B→B→A→A buttons in the remote controller sequentially.



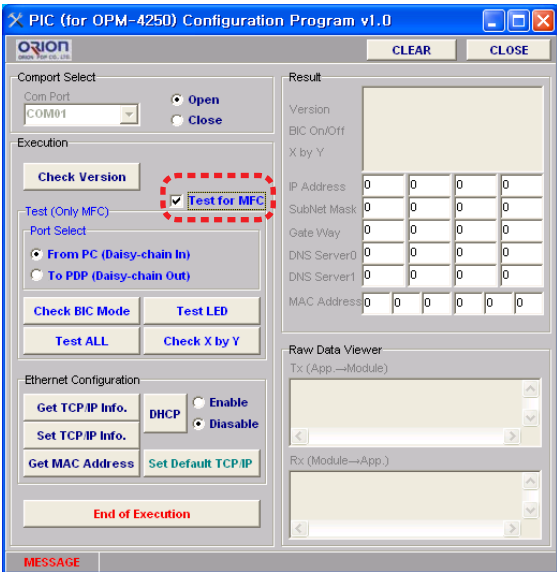
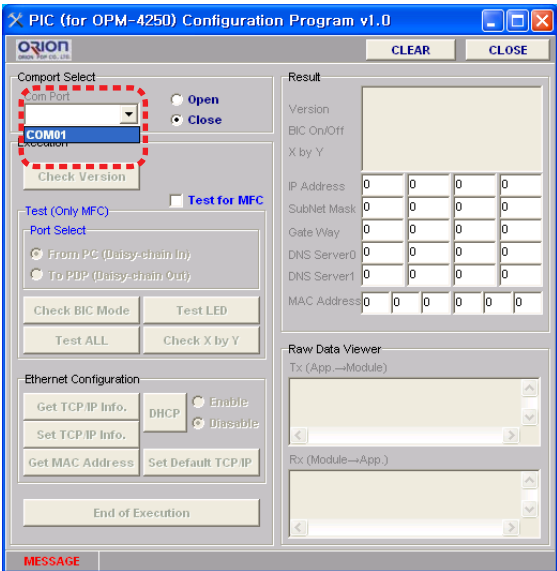
2) When the two LED dots in upper 7-segment are turned on, test mode is started.



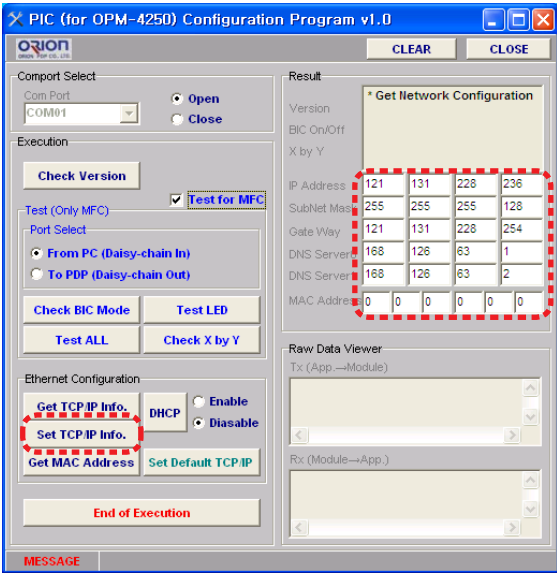
3) Load the provided program by executing "PIC Configuration.exe" in your computer.
A status window is popped up as shown in the following picture.(Serial port cable must be connected)



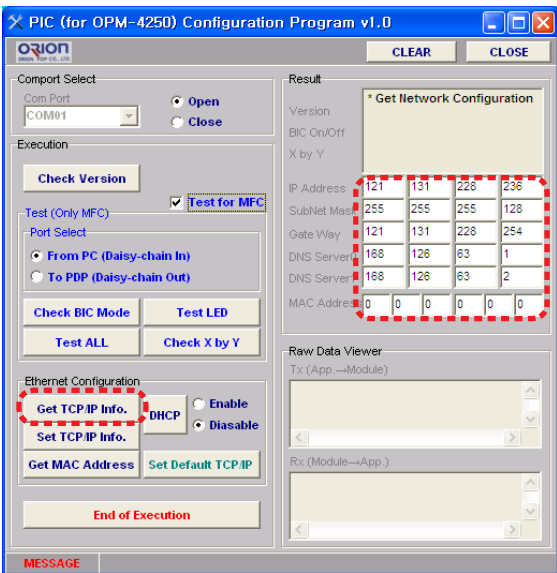
4) Match the Com Port and press "OPEN" and click "Test for MFC"



5) Type IP address and press "Set TCP/IP Info"



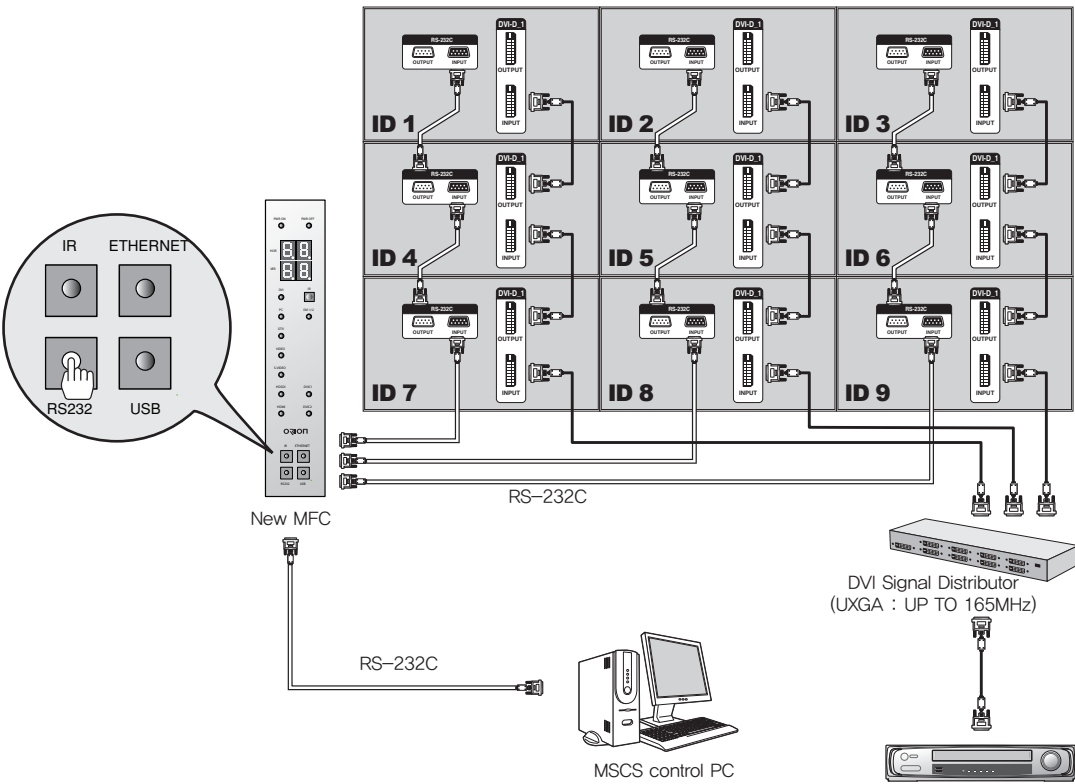
6) Press "Get TCP/IP Info" and check the IP address.



3. Serial mode

Serial communication is performed based on RS-232C specification. New MFC allows long distance communication by compensating communication signals, because the signal strength may be decreased by daisy chain connection.

- 1) To execute Serial mode, press RS-232C LED switch on the front side of New MFC
- 2) To control MPDP, connect to a computer and use MSCS program.
(Corresponding port should be selected)



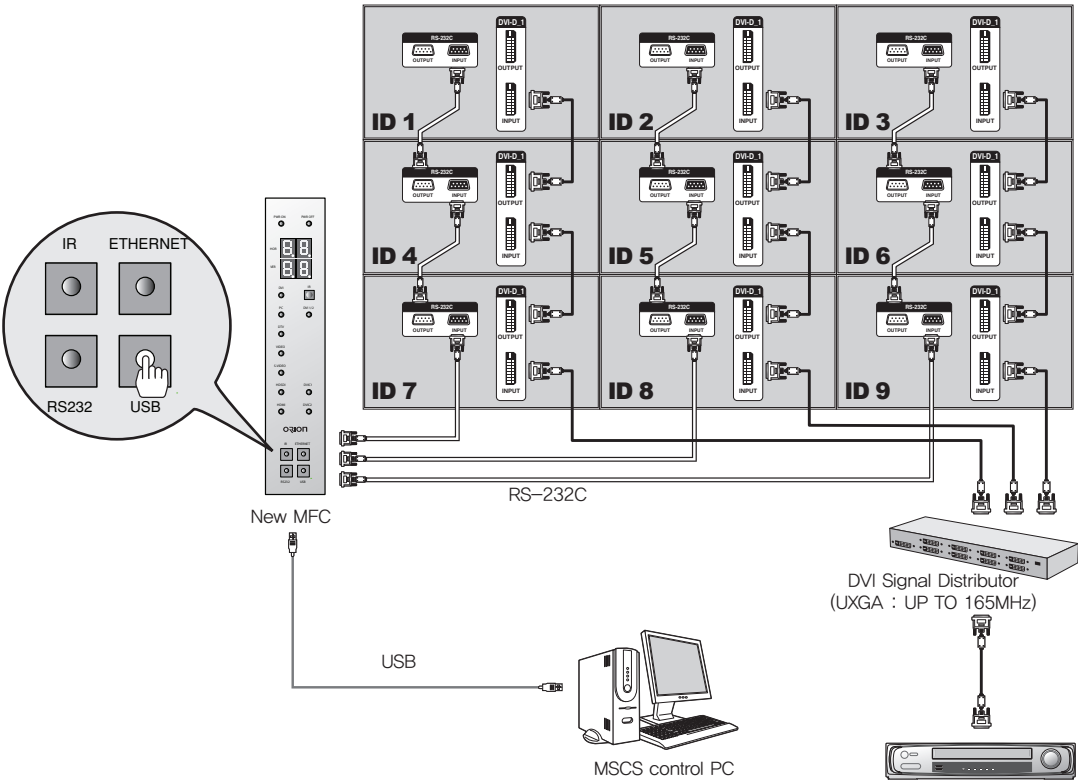
4. USB mode

USB communication is performed based on RS-232C specification too. The external interface is USB type and it is converted to RS-232C internally.

- 1) To execute USB mode, press USB LED switch on the front side of New MFC
- 2) To control MPDP, connect to a computer with USB cable and use MSCS program.
(Corresponding port should be selected)

■ How to install USB driver

- 1) Download a proper driver that fits FT232R type from <http://www.ftdichip.com/Drivers/VCP.htm>.
- 2) Unzip the downloaded file, "CDM 2.04.16 WHQL Certified.zip"
- 3) When the New MFC and a computer is connected, it searches the driver for a new device. Set the path to the folder that the unzipped file is saved and start driver installation.
- 4) "USB Serial Port" is registered at the Control panel. The communication port number is shown as "COM23", The number of each USB port may be changed.



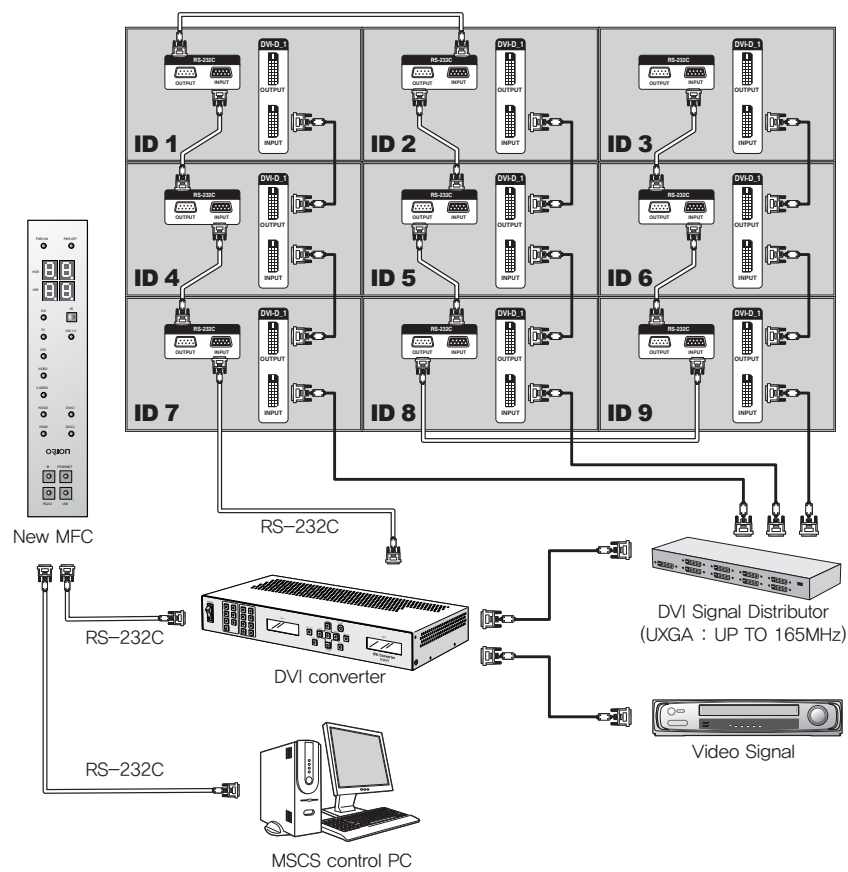
05-6. Input Selection

This function is used for a DVI converter, sold separately. It indicates various inputs and outputs with a DVI converter.

It receives Computer, HDMI, DTV, VIDEO, S-VIDEO, DVI, and HDSDI as input source, converts to DVI and sends to MPDP.

New MFC is designed to control the input sources of DVI converter easily.

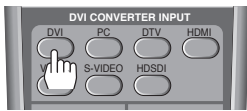
- 1) When the input source of the DVI converter is selected by MSCS program on the computer or the remote controller of New MFC, the corresponding LED is turned on.
- 2) Two outputs of the DVI converter can be selected and the corresponding LEDs are turned on.



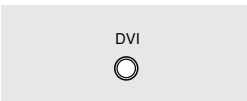
■ Input Selection

All inputs are executed as full screen mode.

1. DVI

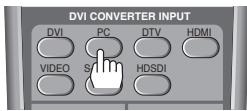


1) Press DVI button.

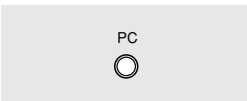


2) DVI LED is on.

2. PC

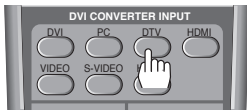


1) Press PC button.

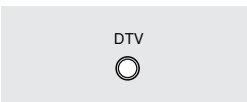


2) PC LED is on.

3. DTV

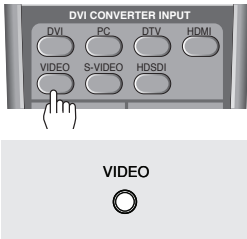


1) Press DTV button.



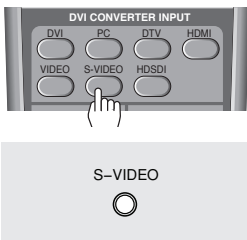
2) DTV LED is on.

4. VIDEO



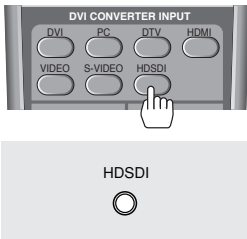
- 1) Press VIDEO button.
- 2) VIDEO LED is on.

5. S-VIDEO



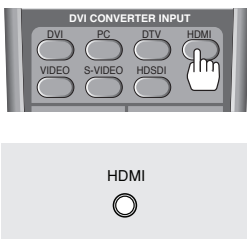
- 1) Press S-VIDEO button.
- 2) S-VIDEO LED is on.

6. HDSDI



- 1) Press HDSDI button.
- 2) HDSDI LED is on.

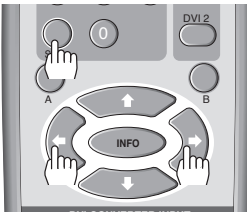
7. HDMI



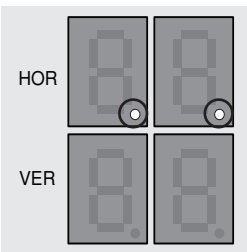
- 1) Press HDMI button.
- 2) HDMI LED is on.

05-7. X x Y Configuration (e.g. Horizontal 5 sets x Vertical 6 sets)

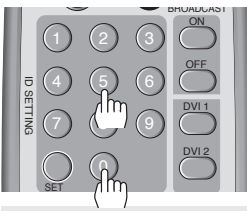
■ Horizontal configuration



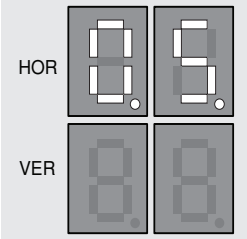
- 1) Press SET button.
- 2) Press Left and Right buttons sequentially to enter the horizontal configuration mode.



- 3) When the 2 LEDs at lower right corner of each 7-segment of Horizontal line in the New MFC are turned on, the horizontal configuration mode is started.



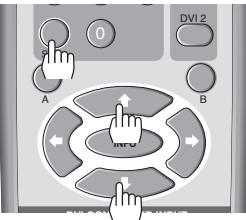
- 4) Use the number buttons to set the numbers of MPDP sets in horizontal line.
—e.g. If you want to set 5 for horizontal number, press "0" for the tens digit and "5" for the units digit.



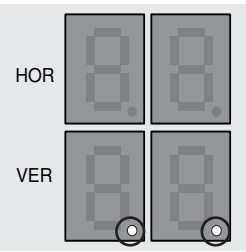
- 5) Press SET button to finish the horizontal configuration mode.



■ Vertical configuration



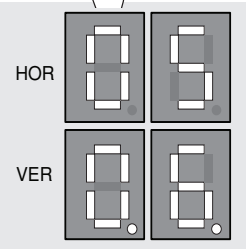
- 1) Press SET button.
- 2) Press Up and Down buttons sequentially to enter the vertical configuration mode.



- 3) When the 2 LEDs at lower right corner of each 7-segment of Vertical line in the New MFC are turned on, the vertical configuration mode is started.



- 4) Use the number buttons to set the numbers of MPDP sets in Vertical line.
—e.g. If you want to set 6 for vertical number, press "0" for the tens digit and "6" for the units digit.

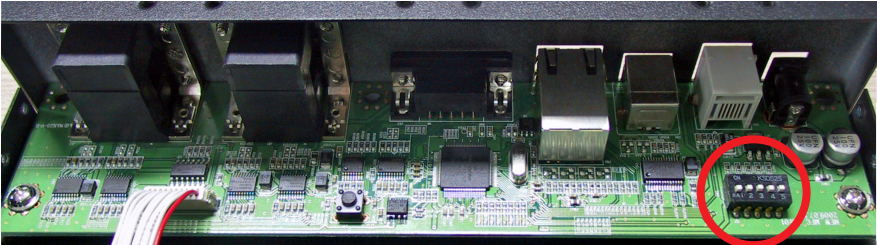


- 5) Press SET button to finish the vertical configuration mode.

05–8. BIC control Setting (Only applicable to OPM–4250, OPM–4250R)

BIC (Burn–In Compensation) function is to reduce the visible burn–in effect on the screen by the communication with MPDP through New MFC.

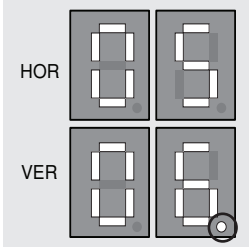
- 1) There is BIC On/Off switch on the main board for BIC Control Setting.
(See the white circle lower right corner of the following picture)



- 2) To turn on BIC, move the pin No.1 of the SW6 to On side.

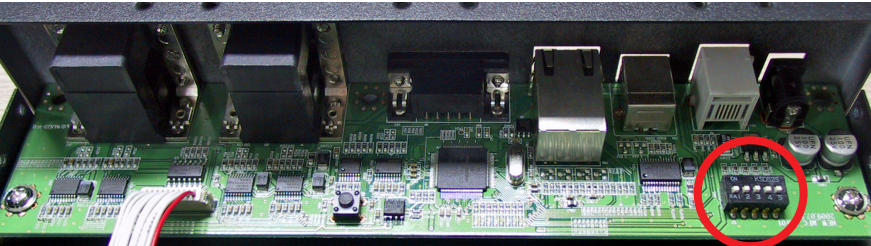


- 3) When the LED dot in the lower right side of 7-segment is turned on, BIC is started.



05–9. Baud–Rate Configuration

- 1) New MFC can be used as a communicational distributor for any devices with its various communicational speeds.
- 2) To configure the baud–rate, adjust the baud–rate switch(SW6), which is circled at the lower right corner of the following picture.



* SW6 is used for BIC on/off (Pin No.1) and baud–rated configuration (Pin No.3~5) commonly.

3) Baud–Rate Configuration

Mode		Switch (SW6) – 3,4,5		
		3pin	4pin	5pin
Daisy–chain In	9600bps	On	On	–
	19200bps	Off	On	–
	57600bps	On	Off	–
	115200bps	Off	Off	–
Daisy–chain Out	9600bps	–	–	On
	115200bps	–	–	Off

06. Before calling for service

Before calling for service, check the following and then contact the dealership where you purchased this product.

- 1. New MFC is not turned off even after MPDP power cable is disconnected.
 - New MFC and MPDP set work with the independent power supplies. When you need to turn on the MPDP again, please connect power cable and press "ON" button in the New MFC.
 - If you want to turn off New MFC, please disconnect the power cable of the New MFC.
- 2. New MFC does not work with no reason.
 - Please disconnect and reconnect the adapter.
 - Please replace batteries of the remote controller.

07. Specification

Product Name	Specification	
Remote Controller	Name	MPDP REMOTE CONTROL
	Power	1.5V Battery(AAA) 2EA
	Size	55(W) x 190(L) x 25(H) mm
	Environmental Condition	-10℃ ~ 40℃
	Weight	130g
NEW MFC	Voltage	+5~9V(DC), 1.25W (MAX)
	Power Consumption	250mA(Max, +5~9V)
	Size	58(W) x 216(L) x 46(H) mm
	Environmental Condition	0℃ ~ 40℃, 20 ~80% RH
	Weight	480g
Adapter	Size	35(W) x 80(L) x 86(H) mm
	Input	90~264V(47~63Hz)
	Output	5V, 2000mA
	Output Jack	2.1φ (Internal diameter):Vcc, 5.5φ (External diameter):GND

Input/Output Specification

NEW MFC	Terminal Name	Terminal Specification	
Control Input	RS-232C	D-Sub 9Pin (Female)	Baud Rate : 115200
	Ethernet	RJ-45	TCP/IP
	USB	Type B	USB2.0
	IR	Max 15m, left/right 45° (standard : 3m)	
	Key Button	Control Mode Select (IR / Ethernet / RS-232C / USB)	
Control Output	RS-232C (4ea)	D-Sub 9Pin (Male)	Baud Rate : 115200 Max ±15V
MPDP ID Setting	7-Segment LED	1~99	MPDP Horizontal Number, Vertical Number

- Minimum interval between button input: 0.6 second
- ※ Specification can be changed without prior notice to improve product quality.

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New Multi Function Controller

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